

REMARKS

Reconsideration and allowance for the above-identified application are now respectfully requested. Claims 1-43 are pending, wherein claims 1-23, 29, and 31 have been amended.

I. CLAIM REJECTIONS UNDER 35 U.S.C. § 102

A. REJECTION OVER U.S. PATENT NO. 5,941,256 TO GUAY ET AL.

The Office Action rejects claims 1-3, 7-10, 14-17 and 21 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,941,256 to Guay et al. In response, Applicants have amended the foregoing claims in a manner that is believed to distinguish over Guay et al. Guay et al. discloses dental floss to which microcapsules containing a pigment are attached. When the dental floss according to Guay et al. is passed between a user's teeth, the microcapsules are ruptured, thereby causing the pigment encapsulated therein to spill onto the dental floss so as to stain it and cause it to change color. Col. 1, lines 22-34; col. 3, lines 4-9; col. 3, lines 56-62; col. 4, lines 35-40.

Claims 1, 8, and 15 have been amended to specify that the dental floss is coated or impregnated with a colored material to yield a colored dental floss that "changes color through removal of said colored material from said colored dental floss" (or similar language). Support for the amendments to claims 1, 8 and 15 is found in the Application at page 5, lines 12-15. In this embodiment, the dental floss is colored prior to use and then changes color as the result of at least a portion of the colored material being removed (*e.g.*, being rubbed off). Application, page 5, line 15. This is exactly opposite to the dental floss of Guay et al., which is not initially colored, and which only becomes colored during use as a result of the rupture of microcapsules containing the pigment, causing the pigment to spill out onto the initially uncolored dental floss. Thus, it will be appreciated that the dental floss recited in claims 1, 8, and 15 works in exactly the opposite manner as the dental floss in Guay et al. to indicate use. Applicants therefore submit that claims 1, 8 and 21 are neither taught nor suggested by Guay et al., either alone or in combination with any other prior art of record.

Claims 2, 9, and 16 have alternatively been amended to claim a dental floss coated or impregnated with a "color-changing material that changes color in response to changes in pH throughout a pH range of 5.0 to 9.0 when said dental floss is exposed to saliva". Support for the

amendment to claims 2, 9, and 16 is found in the Application at page 5, lines 16-20. Guay et al. neither teaches nor suggests the use of pH indicators of any kind, let alone pH indicators that specifically change color in response to pH changes within a pH range of 5.0 to 9.0. For this reason, Applicants believe that claims 2, 9, and 16, as currently amended, are neither anticipated by nor obvious over Guay et al., either alone or in combination with any other prior art of record.

Claims 3, 10, and 17 have alternatively been amended to specifically recite the inclusion of "an indicator dye comprising at least one of thymol blue or bromthymolphthalein". Support for the amendment to claims 3, 10, and 17 is found on the Application at page 8, lines 20 and 21. Guay et al. neither teaches nor suggests the use of pH indicators of any type, let alone the specific pH indicators recited in claims 3, 10, and 17. Accordingly, Applicants submit that claims 3, 10, and 17 are neither anticipated by nor obvious over Guay et al. either alone or in combination with any other prior art of record.

Claims 7, 14, and 21 alternatively define a dental floss that is or has been directly coated or impregnated with a medicament or anti-microbial material. The amendments to these claims are inherent in the claims as originally filed and as shown in the drawings. Guay et al. neither teaches nor suggests directly coating or impregnating dental floss with a medicament or anti-microbial material. Instead, Guay et al. discloses attaching microcapsules that contain various materials, including active ingredients in some cases, onto or within the dental floss. Because the use of microcapsules is an essential feature of the invention disclosed in Guay et al., Guay et al. could be understood as teaching away from directly coating or impregnating dental floss with a medicament or anti-microbial material. For this reason, Applicants believe that claims 7, 14, and 21 are neither anticipated by nor obvious over Guay et al., either alone or in combination with any other prior art of record.

B. U.S. Patent No. 5,357,989 to Gathani

The Office Action rejects claims 1, 4-6, 8, 11-13, 15, 18-20 and 29-35 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,357,989 to Gathani. Gathani discloses a dental floss or tape that is impregnated or coated with a pH-sensitive dye that is specifically selected to change color in an acid environment, thus alerting the user to the potential presence of dental caries. Abstract. Gathani teaches that the dye is selected so as to be "extremely pH-sensitive in its range definition". Col. 1, lines 40-41. "The pH range of the indicators is between pH 6.8 and

pH 3.0". Col. 2, lines 7-8. This strongly suggests that it would be contrary to Gathani to substitute the acid-indicating pH indicators disclosed therein with pH indicators that operated at significantly higher pHs or pH ranges.

In contrast to Gathani, which discloses the use of pH indicators that change color in response to a pH in a range of 6.8 to 3.0, claims 1, 8, and 15 define a dental floss that "changes color through removal of [a] colored material from [the] dental floss" (or similar language). Gathani neither teaches nor suggests the manufacture or use of any such dental floss.

Claims 4, 11, and 18 alternatively claim a dental floss that includes a color-changing material that changes color "as a result of a chemical reaction between said color-changing material and the particular enzymes" that may be found in a person's mouth. Support for the amendments to claims 4, 11, and 18 is found in the Application at page 7, lines 10-15. The dental floss of Gathani only changes color in response to changes in pH, regardless of the existence or absence of enzymes. Applicants therefore submit that Gathani neither teaches nor suggests coating or impregnating dental floss with a color-changing material that changes color by reacting with the enzymes themselves, rather than simply detecting pH changes.

Claims 5, 12, and 19 alternatively define a dental floss that is coated or impregnated with a color-changing material that "only changes color when said dental floss contacts particular enzymes in a mouth". Support for the amendments to claims 5, 12, and 19 is found in the Application at page 7, lines 13-15. As stated above, Gathani neither teaches nor suggests dental floss that only changes color when the dental floss contacts particular enzymes in a person's mouth rather than changing color in response to changes in pH regardless of the presence or absence of particular enzymes in a person's mouth.

Claims 6, 13, and 20 alternatively recite a dental floss that "indicates and specifically identifies the presence of one or more of a virus, disease, infection, bacteria, or plaque". Support for the amendment to claims 6, 13, and 20 is found in the Application at page 7, lines 1-9. In contrast with the dental floss defined in claims 6, 13, and 20, which can diagnose the existence of and distinguish between specific diseases, the dental floss of Gathani merely changes color in response to changes in pH in the acid range. The dental floss of Gathani is incapable of diagnosing or distinguishing between specific diseases or ailments found in a person's mouth.

Independent claim 29, as well as dependent claims 30-35 which depend therefrom, define a dental floss comprising "a medicament directly coating or impregnating said dental floss". In

contrast, Gathani merely discloses a dental floss that includes a pH indicator dye. To the best of Applicants' knowledge, none of the pH indicators disclosed in Gathani have any medicinal purpose and therefore do not constitute "medicaments" within the ordinary meaning of that term. For this reason, Applicants believe that Gathani neither teaches nor suggests the dental floss recited in claims 29-35.

C. U.S. Patent No. 4,126,688 to Tarrson et al.

The Office Action rejects claims 7, 14, 21, 29, and 31 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,126,688 to Tarrson et al. Tarrson discloses a medicating floss dispenser that comprises separate chambers for holding untreated dental floss in one chamber and a medicament solution, such as fluoride gel or liquid, in another chamber. The purpose for this is to ensure that the medicament solution is freshly applied to the fluoride surface in liquid or gel form just before use. This solves the alleged problem of unsatisfactory results, which occurs when a floss is "previously wet and then dried" according to Tarrson et al. Col. 1, lines 23-27. Tarrson et al. also disparages floss that is pre-wetted with a fluid or gel medicament as being "rather messy" and "objectionable to the user". Col. 1, lines 28-30. In view of the foregoing, Tarrson et al. can be understood as teaching away from coating or impregnating dental floss with a medicament and then winding the floss onto a spool for storage and later use, as now recited in claims 7, 14, 21, and 29. Support for this limitation is inherent in the original claims, drawings and specification. For this reason, Applicants submit that claims 7, 14, 21, 29, and 31 are neither anticipated by nor obvious over Tarrson et al., either alone or in combination with any other prior art of record.

D. U.S. Patent No. 5,518,012 to Dolan et al.

The Office Action rejects claims 7, 14, and 21 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,518,012 to Dolan et al. Dolan et al. discloses an expanded polytetrafluoroethylene (PTFE) floss that allegedly has "improved handling properties". Abstract. Dolan et al. teaches the criticality of using PTFE as the floss material rather than nylon or other materials that are conventionally used to make dental floss. Col. 1, lines 28-31. Among other things, "[e]xpanded PTFE flosses have a number of advantages over conventional nylon flosses, including resistance to shredding (and its accompanying sticking of fiber shreds between

teeth) and high lubricity". Col. 1, lines 28-31. In view of this, Dolan et al. clearly teaches away from the use of nylon and other materials rather than PTFE. Claims 7, 14, and 21 have been amended to specifically claim a dental floss comprising nylon or rayon. Support for this amendment to claims 7, 14, and 21 is found in the Application at page 5, lines 6-7, which describes nylon and rayon as being "preferred". Because Dolan et al. clearly teaches away from the use of nylon and similar materials in making dental floss, Applicants submit that claims 7, 14, and 21 as amended are neither anticipated by nor obvious over Dolan et al., either alone or in combination with any other prior art of record.

II. REJECTION UNDER 35 U.S.C. § 103

The Office Action rejects claims 23-26 and 29-35 under 35 U.S.C. § 103(a) as being obvious over Guay et al. In response, claim 23 has been amended to define a dental floss that changes color "as a result of at least one of the following:

- (i) through removal of said colored or color-changing material when said dental floss is used to floss teeth
- (ii) in response to changes in pH throughout a pH range of 5.0 to 9.0
- (iii) because said colored or color-changing material is an indicator dye comprising at least one of thymol blue or bromthymolphthalein, or
- (iv) as a result of a chemical reaction between said colored or color-changing material and particular enzymes found in the mouth of the user."

As discussed in detail above, Guay et al. neither teaches nor suggests a dental floss having any of the foregoing properties or characteristics. For this reason, Applicants submit that claims 23-26 are patentable and nonobvious over Guay et al., either alone or in combination with any other prior art of record.

Claim 29 alternatively recites a dental floss assembly that includes dental floss and "a medicament directly coating or impregnating said dental floss". As discussed above, Guay teaches the criticality of including microcapsules in a dental floss that are ruptured during use in order to release the contents of such microcapsules, including optional medicaments. Guay et al. therefore neither teaches nor suggests "directly coating or impregnating" a dental floss with a

medicament. For this reason, Applicants submit that claims 29-35 are patentable and nonobvious over Guay et al., either alone or in combination with any other art of record.

The Office Action rejects claims 22, 23, 27, 28, and 36-43 under 35 U.S.C. § 103(a) as being unpatentable over Gathani. Claim 22 has been amended to specifically recite a closed set of indicator dyes that are neither taught nor suggested in Gathani. As discussed above, Gathani only discloses pH indicators which change color within a pH range of 6.8 to 3.0. As such, Gathani neither teaches nor suggests the use of thymol blue, bromthymolphthalein, or specific aerobic and anaerobic bacteria, virus, and disease condition indicators. For this reason, Applicants submit that claim 22 as amended is patentable and nonobvious over Gathani.

Claim 23 was amended as described above in a manner that is believed to distinguish over Gathani. In particular, Gathani neither teaches nor suggests dental floss having any of characteristics (i)-(iv) recited in claim 23. Accordingly, Applicants believe that claim 23 as amended is patentable and nonobvious over Gathani. For this reason, dependent claims 27 and 28 are likewise patentable over Gathani.

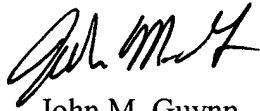
Finally, claim 36 defines a dental floss assembly that includes dental floss and a disease-indicating agent coating or impregnating said dental floss "that indicates and specifically identifies the presence of a particular oral disease if present in a user's mouth". As discussed above, the dental floss of Gathani merely changes color in response to changes in pH in the acid region regardless of the presence or absence of any particular oral disease in a user's mouth. For this reason, Applicants submit that claims 36-43 are patentable and nonobvious over Gathani, either alone or in combination with any other prior art of record.

III. CONCLUSION

In view of the foregoing, Applicants believe that the Application is in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 9th day of January 2004.

Respectfully submitted,



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